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Abstract:
In many jurisdictions, potential injurers are under a legal duty to incorporate possible mistakes of the potential victim. I distinguish three types of mistakes. First, victims might make mistakes because it is too costly to avoid them (e.g. little children in traffic). Second, the actual care level of an actor might sometimes be a bit above, and sometimes a bit below his average care level. Third, people might choose a lower care level than is optimal for them, even though they were able to take optimal care. This is the type of mistake I analyze in this paper. I argue on the basis of a game theoretical analysis that the duty to incorporate such mistakes might frustrate the preventive goal of tort law, because it decreases the care incentives provided to the victim, while simultaneously increasing the care incentives for the injurer. I provide examples of the legal duty to incorporate possible mistakes of the victim from different legal systems. I discuss the doctrine of the Last Clear Chance, as well as Donald Wittmans idea of Marginal Cost Liability. In cases where this idea is not feasible, I argue that the defense of comparative negligence might be a good alternative.

Keywords: Comparative Negligence, Contributory Negligence, Game Theory, Last Clear Chance, Marginal Cost Liability, Mistakes, Tort Law

JEL Classification: C72, K13

The Legal Duty to Incorporate Mistakes of the Victim

Louis Visscher*

1. Introduction

In many jurisdictions, potential injurers are under a legal duty to incorporate possible mistakes of the potential victim when deciding on their own behavior. For example, car drivers have to anticipate that bicyclists might not stop for a red traffic light but cross the intersection anyway, or that they suddenly take a turn without signaling this first. Employers have to take additional safety measures because their employees might not behave carefully when operating machines or entering working areas. Product manufacturers have to make their products so safe that even consumer misuse, such as taking a higher dose of a medicine than prescribed, will not cause losses to the consumer. This legal duty to incorporate mistakes of the victim forms the topic of this paper.

Given the focus of this book on Game Theory and the Law, the issue will be addressed by using a game theoretical framework. The paper starts in Section 2 with an introduction into the economic analysis of tort law, the body of law where the duty to incorporate mistakes is embedded in. In Section 3, the legal duty to incorporate mistakes is analyzed in more detail. I will mostly use examples from Dutch tort law, although cases from other countries will also be considered. In Section 4 I will distinguish different types of mistakes, because the assessment of the legal duty to incorporate mistakes differs per type distinguished. In Section 5, the game theoretical analysis is presented and the problems connected to the legal duty to incorporate mistakes will become apparent. In Section 6 I will spend attention to the legal doctrine of the Last Clear Chance, which is very relevant for the topic of this article. I will also discuss the 'Marginal Cost Liability' approach as advocated by Donald Wittman. Although this approach theoretically solves the problems that were encountered in Section 5, it is questionable whether the approach is practically feasible. Section 7 contains the conclusions.

2. Economic Analysis of Tort Law

2.1 Deterrence as Primary Goal of Tort Law

Many lawyers regard 'compensation' as the primary goal of tort law and the law of damages. The tortfeasor should, in as far as this is possible, bring the victim in the position which he would have reached if the tort would not have been committed. However, this view is challenged more and more. Keeton, in the American handbook *Prosser and Keeton on Torts*, argues that tort law is concerned with allocating the losses which are caused by human activities. The primary function hence is not

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compensating the losses, but rather determining in which cases compensation is indicated and in which cases it is not.[1] The same line of reasoning is found in handbooks regarding Australian, British and Canadian tort law.[2] Also in civil law handbooks, the view that tort law decides when compensation is to be required becomes more important. The German lawyer Kötz even states that if one says that compensating is the goal of tort law, one should also say that non-compensating is the goal, because not in all cases compensation is granted.[3] Williams argues that the traditional view that tort law aims at compensation is too shallow. The underlying question is, why the losses should be compensated. The answer is to be found in the goals of tort law.[4]

One of the possible goals that Williams distinguishes is prevention. It is more important to avoid losses than to compensate not-avoided losses.[5] Also Keeton stresses the preventive function. The knowledge that one can be held liable provides a strong incentive 'to prevent the occurrence of harm. Not infrequently one reason for imposing liability is the deliberate purpose of providing that incentive.'[6] Kötz argues that one should not aim at prevention against all costs. If the costs of prevention outweigh the avoided losses, these preventive measures are undesirable.[7]

With this last line of reasoning, Kötz is actually applying Law and Economics insights. Accident losses are economically described as negative externalities, so costs that are borne by others than the actor who causes them. The result of negative externalities is that the price of the activity does not reflect the full social costs, and that due to this too low price the activity is executed too often. By letting the injurer internalize the externality, this form of market failure might be corrected. Tort law can be regarded as a legal instrument which lets actors internalize the negative externalities connected to their activities.[8]

Calabresi in this respect regards the reduction of accident costs as the goal of tort law. This goal is divided into three sub goals: (1) reduction of primary accident costs, i.e. the costs of care plus the expected accident losses, by reducing the number and/or severity of accidents ('prevention'); (2) reduction of secondary accident costs by optimally spreading the losses that are not avoided over a larger group or by transferring it to a party that is better able to bear the losses ('loss spreading'); (3) reduction of tertiary accident costs, i.e. the costs made to reduce primary and secondary costs ('administrative costs'). The overall goal is to minimize the sum of these three types of accident losses.[9] Viewed this way, compensation is not a goal of tort law, but rather the means with which the goal of cost reduction is aimed for. The traditional legal view is *ex post*: after an accident has occurred, tort law decides who

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1 W.P. Keeton et al., *Prosser and Keeton on the Law of Torts*, 5th student edition, St. Paul Minnesota: West Publishing Co. 1984, p. 20.

2 J.G. Fleming, *The Law of Torts*, 8th edition, Sydney: The Law Book Company 1992, p. 3 and W.V.H. Rogers, *Winfield and Jolowicz on Tort*, 2nd edition, London: Sweet & Maxwell 1994, p. 1.

3 H. Kötz, *Deliktsrecht*, 9., überarbeitete Auflage, Neuwied: Luchterhand 2001, p. 17.

4 G. Williams, 'The aims of the law of tort', (4) *Current Legal Problems* 1951, p. 137.

5 Williams 1951, p. 144.

6 Keeton 1984, p. 25.

7 Kötz 2001, p. 18, 19.

8 Tort law deals with settings of high transaction costs, so that the famous Coase Theorem does not apply. See R.H. Coase, 'The Problem of Social Cost', (3) *Journal of Law and Economics* 1960, p. 1-44.

9 G. Calabresi, *The Costs of Accidents. A Legal and Economic Analysis*, 5th printing, New Haven: Yale University Press 1977, p. 24 ff.

has to bear the losses. The Law and Economics perspective, in contrast, is *ex ante*: tort law provides incentives to lower the probability of accidents happening in the first place.

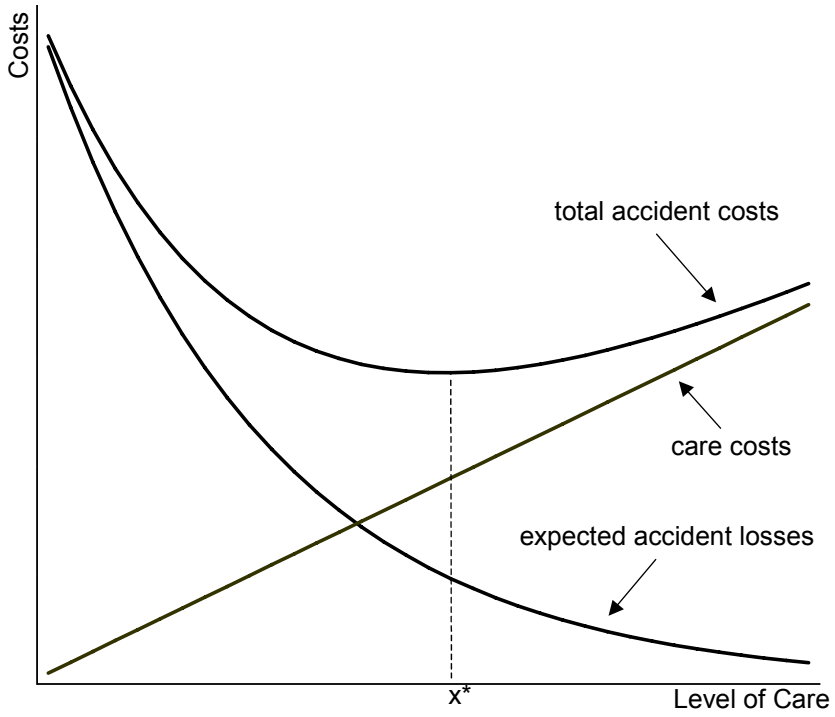
2.2 The Basic Theory

Starting point of the economic analysis of tort law is that people receive behavioral incentives from the perspective of possibly being held liable if they cause losses. Liability can either be attached to the fact that the injurer has acted wrongfully (negligence) or to the fact that he engaged in a certain activity, regardless of how careful he was (strict liability). Possible liability in both cases provides the incentive to take more care and/or to engage in the activity less often. The activity level will be further disregarded in this paper, as the topic focuses on care levels of the actors involved.

By spending more resources on care, the potential injurer can lower the accident probability and/or the losses that result if an accident takes place. *E.g.* lowering ones driving speed lowers the probability that an accident occurs, because there is more time to respond to unexpected situations, it is possible to brake in time for a suddenly crossing pedestrian, *et cetera*. The reduced speed also might decrease the losses if an accident occurs after all, because the victim is now hit at a lower velocity. In any case, the expected accident losses, which consist of the accident probability multiplied by the resulting losses, decreases when the care level increases.

It is assumed that this decrease goes at a 'decreasing rate', because the injurer will first take the care measures that yield the highest results. Hence, the higher ones care level already is, the less impact an additional unit of care will have. It is furthermore assumed that every unit of care costs the same. This leads to the result that an optimal care level can be reached, where the sum of care costs and expected accident losses is minimized, or put differently, where the marginal costs of care equal the marginal benefits. As long as the marginal costs are lower than the marginal benefits, it is desirable that the additional care is taken, because this lowers the sum of care costs and expected accident losses. As soon as the marginal costs exceed the marginal benefits, additional care is no longer desirable. This is clearly shown in the graph below, where the optimal care level is denoted by x^* :

Figure 1



It is well established in the Law and Economics literature that in unilateral situations, where only the injurer can influence the accident probability and/or the level of losses, both strict liability and negligence provide the correct care incentives to the injurer, provided that under the latter rule the court uses the optimal care level as due care. In that case, the injurer minimizes his expected costs by exactly taking due care. After all, if he takes less care he is liable and hence faces the total accident costs, consisting of care costs and expected accident losses. If he takes more care, his care costs are higher than necessary, because he already escapes liability by taking due care. Under a rule of strict liability, the injurer is always liable and hence always faces the total accident costs. He minimizes these costs by taking due care.

In bilateral situations, where also the behavior of the victim is relevant, the negligence rule and the rule of strict liability with a defense of contributory negligence (and under conditions also the defense of comparative negligence) lead to this optimal result. Under the negligence rule, the injurer avoids liability by taking due (= optimal) care and the victim, who is the residual risk bearer, wants to minimize the costs he has to bear himself by taking optimal care as well. Under strict liability with the defense of contributory or comparative negligence, the victim takes optimal care to avoid being negligent and the injurer, who is the residual risk bearer, wants to minimize his expected costs by also taking optimal care.[10] Without the defense, the victim would

10. See, among many others, S. Shavell, *Economic Analysis of Accident Law*, Cambridge, Massachusetts: Harvard University Press 1987, p. 5ff; R.D. Cooter and T. Ulen, *Law and Economics*, 4th edition, Boston: Pearson Addison Wesley 2004, p. 320ff; M.G. Faure, 'Economic Analysis of Contributory Negligence', in: U. Magnus and M. Martín-Casals (Eds.), *Unification of Tort Law: Contributory Negligence*, The Hague: Kluwer Law International 2004, p. 233-256; R.A. Posner, *Economic Analysis of Law*, 6th edition, New York: Aspen Publishers 2003, p. 172ff and S. Shavell, *Foundations of Economic Analysis of Law*, Cambridge, Massachusetts: The Belknap Press of Harvard University Press 2004, p. 182ff.

take no care because the injurer is always liable. In the basic model, and also throughout this paper, it is assumed that the losses of the victim can be fully compensated.[11] I will not further analyze strict liability without a defense, because this rule cannot provide optimal incentives in bilateral settings.

A game theoretical matrix (the so-called 'normal form') can illustrate the above line of reasoning that both negligence and strict liability with a defense of contributory negligence can provide optimal care incentives. I will first give a numerical example[12] and subsequently generalize the results. Suppose that an injurer and a victim can both choose between 'care' and 'no care'. If both take no care, the accident probability is 15%, if only the victim takes care it is 12%, if only the injurer takes care it is 10% and if both take care it is 6%. Taking care costs 3 to the injurer and 2 to the victim. If an accident happens, only the victim suffers a loss (of 100). Given these data, it is optimal if both players take care, because the total accident costs are then minimized.[13] Hence, the due care level for both implies that they should take care. It can easily be shown that this optimal result will be reached under negligence and strict liability with the defense of contributory negligence. Note that in the game matrices, the numbers reflect the costs incurred by the respective players, so that they aim at minimizing their payoff.[14]

Matrix 1: Negligence

		Victim		
		no care		*care*
Injurer	*no care*	15 / 0	←	12 / 2
		↓		↓
	care	3 / 10	→	3 / 8

Under negligence, when deciding whether or not to take care, the injurer compares his costs if taking care (3) with his costs of not taking care. These are 15 (15% times 100) if the victim takes no care, and 12 (12% times 100) if the victim takes care. It is clear that taking care is always better for the injurer, irrespective of what the victim does, because this way he minimizes his expected costs. In other words, the injurer has a 'dominant strategy' to take care.

The expected costs of the victim are as follows. If the injurer takes no care, the victim bears no costs if he also takes no care, and his care costs of 2 if he does take care. If the injurer takes care, on the other hand, the expected costs of the victim amount to 10 if he takes no care (10% times 100), and 8 if he takes care (6% times 100, plus care costs of 2). Hence, the victim has no dominant strategy: if the injurer is negligent and

11. For a game theoretical analysis of the problem of uncompensated losses, see L.T. Visscher, 'The Problem of Uncompensated Losses. The Case of Dutch Traffic Liability', in: C. Ott and G. von Wangenheim (Eds.), *Essays in Law and Economics IV*, Antwerpen: Maklu 1998, p. 203-221.
12. The example is based on Shavell 1987.
13. 15%*100 = 15; 12%*100 +2 = 14; 10%*100 + 3 = 13; 6%*100 + 2 + 3 = 11. Hence, if both parties take care, the total costs are minimized,
14. In most games, a player prefers a larger payoff over a smaller, but in the current game this is not the case. Also in the well-known game of the *prisoners' dilemma*, players seek to minimize their payoffs, which consist of the length of jail sentences. See e.g. A. Dixit and S. Skeath, *Games of Strategy*, 2nd Edition, New York: W.W. Norton & Company, Inc. 2004, p. 91.

hence liable the victim does not take care, but if the injurer is not negligent, the victim does take care. Given the dominant strategy of taking care of the injurer, the victim has an 'iterated dominant strategy' to take care. Therefore, in the Nash equilibrium, both players take care.

Matrix 2: Strict liability with a defense of contributory negligence

		Victim		
		no care		*care*
Injurer	*no care*	0 / 15	→	12 / 2
		↑		↓
	care	3 / 10	→	9 / 2

Under this rule, the injurer is liable unless the victim was contributory negligent (*i.e.* he took no care). This provides the victim with a dominant strategy to take care (to avoid having to bear the losses himself). The injurer has an iterated dominant strategy to take care, because he knows that he is liable. Taking care reduces his expected costs from 12 (12% times 100) to 9 (6% times 100 plus care costs of 3). The Nash equilibrium again is that both parties take care. Note that the defense of comparative negligence, where the losses are divided over injurer and victim, can also lead to the optimal outcome, provided that the fraction of the losses that the victim has to bear is large enough.[15]

The numerical example can be generalized as follows. Denote the care level of the injurer by x and the care level of the victim by y. For simplicity, I assume that each unit of care costs 1, so that x and y also denote the care costs of the injurer and the victim respectively. Given that care cannot be negative, $x \geq 0$ and $y \geq 0$. The accident probability is denoted by p. This accident probability depends on the care level of both the injurer and the victim, so that $p = p_{(x,y)}$. This accident probability is non-negative ($p_{(x,y)} \geq 0$) and is a decreasing function of x and y, so that $\partial p_{(x,y)} / \partial x < 0$ and $\partial p_{(x,y)} / \partial y < 0$. The decrease in accident probability due to a higher care level goes at a decreasing rate, so that $\partial^2 p_{(x,y)} / \partial x^2 > 0$ and $\partial^2 p_{(x,y)} / \partial y^2 > 0$. The resulting losses are denoted by L. For simplicity, the size of the losses is assumed to be fixed and independent of the care level of both parties and only the victim is assumed to suffer a loss.

Total Accident Costs (TAC) can be denoted as $x + y + p_{x,y)}L$. For any given level of care of one player, there is a level of care of the other player that minimizes TAC. The unique socially optimal values of x and y which lead to the lowest possible TAC are denoted by x^* and y^*. Care inputs from injurer and victim are assumed to be

15. I leave the discussion regarding the alleged superiority of comparative or contributory negligence aside. See *e.g.* D. Haddock and C. Curran, 'An Economic Theory of Comparative Negligence', (14) *Journal of Legal Studies* 1985, p. 49-72; R.D. Cooter and T.S. Ulen, 'An Economic Case for Comparative Negligence', (61) *New York University Law Review* 1986, p. 1067-1110; D.L. Rubinfeld, 'The Efficiency of Comparative Negligence', (16) *Journal of Legal Studies* 1987, p. 375-394; D. Orr, 'The Superiority of Comparative Negligence: Another Vote', (20) *Journal of Legal Studies* 1991, p. 119-129; T.-Y. Chung, 'Efficiency of Comparative Negligence. A Game Theoretic Analysis', (22) *Journal of Legal Studies* 1993, p. 395-404 and O. Bar-Gill and O. Ben-Shahar, 'The Uneasy Case for Comparative Negligence', (5) *American Law and Economics Review* 2003, p. 433-469.

substitutes. The reason for this is that the duty to incorporate mistakes of the victim requires the injurer to take additional care measures as a response to the mistakes of the victim. This only makes sense in situations where care inputs of both players are substitutes. Hence, if a player chooses a lower (higher) care level than the socially optimal level, TAC are minimized (given this non-optimal care level of one player) if the other player chooses a higher (lower) than optimal care level.

Assume that courts under a negligence rule use the optimal care level as due care level and that the courts make no mistakes in assessing true and due care levels. The expected private costs for the injurer then are $x + p_{(x,y)}L$ if $x < x^*$ and x if $x \geq x^*$. The expected private costs of the victim are y if $x < x^*$ and $y + p_{(x,y)}L$ if $x \geq x^*$. If the injurer chooses to be non-negligent, he will choose $x = x^*$, because x^* is enough to escape liability. In that case, the victim chooses $y = y^*$, because that minimizes $y + p_{(x^*,y)}L$. If the injurer on the other hand chooses to be negligent, the victim will choose $y = 0$, because that minimizes y. So, the injurer chooses due care if $x^* < x + p_{(x,0)}L$ (for any $x \neq x^*$). It is easy to see that this inequality holds. After all, the injurer minimizes $x + p_{(x,0)}L$ by taking higher care than x^*. Denote this higher care level by x^+. So, $x^* < x^+$ and obviously $x^+ < x^+ + p_{(x^+,0)}L$, which implies that $x^* < x^+ + p_{(x^+,0)}L$. Hence, the injurer will take due care, as will the victim, so that the optimal outcome is reached under the negligence rule.

Under a rule of strict liability with a defense of contributory negligence, the expected private costs for the victim are y if $y \geq y^*$ and $y + p_{(x,y)}L$ if $y < y^*$. The expected private costs of the injurer are x if $y < y^*$ and $x + p_{(x,y)}L$ if $y \geq y^*$. If the victim decides not to be contributory negligent, he will choose $y = y^*$. In that case, the injurer chooses $x = x^*$, because that minimizes $x + p_{(x,y^*)}L$. If the victim would choose to be contributory negligent, the injurer would choose $x = 0$, because that minimizes x. Hence, the victim chooses due care if $y^* < y + p_{0,y)}L$ (for any $y \neq y^*$). The same line of reasoning can be followed as under negligence: $y^* < y^+ < y^+ + p_{0,y^+)}L$. Hence, the victim will take due care, as will the injurer, so that the optimal outcome is reached under this rule as well.

3. The Legal Duty to Incorporate Mistakes of the Victim

3.1 Introduction

In many legal systems, people have a legal duty to incorporate possible mistakes of others when deciding on their own behavior. This legal duty could possibly disrupt the care incentives that parties receive from the liability system, depending on the types of mistakes that actors should anticipate. If a victim chooses a care level lower than his optimal level and if the injurer has to anticipate this behavior by switching to a higher than optimal care level, the general conclusions from the Law and Economics literature regarding the efficient outcome of different liability rules which were presented above no longer hold. In this section I will discuss this legal duty in somewhat more detail, focusing mainly on examples from Dutch tort law.

3.2. Dutch Law

Generally speaking, in their behavior people have to take possible reactions or other behavior of others, among which the victim, into account. *E.g.* road authorities have to reckon with the normal road-user when designing and maintaining roads. When working on the road, the authorities should place warning signs in such a manner that speeding and incautious traffic is adequately warned and still has the opportunity to adapt to the circumstances. However, the actions of the victim can be so unexpected or so careless, that the injurer does not have to anticipate this behavior. *E.g.* the road authorities of Rotterdam were not held liable for the injuries of a car driver who skit in a clearly visible 70 meter long pool of water over the whole width of the road surface, because his speed was 80 km/h. This behavior was so much below the care level that generally can be required, that the road authorities did not have to foresee it. In the *Jetblast*-case,[16] an accident happened near the airport on the island of St.Maarten. At the gates at the start of the runway, where spectators and plane-spotters gather, there was a warning-sign with a picture of an airplane taking off, and with the text 'Warning! Low flying and departing aircraft blast can cause physical injury'. The plaintiff, notwithstanding the warning, was standing near the gate and when a Boeing 747 took off, she was thrown on the rocks of Maho Beach due to the jetblast. She sues the airport for damages. According to the Supreme Court, whether a warning is enough depends crucially upon whether this warning will change the behavior of the warned. Warning itself hence is not enough, because the injurer should incorporate the fact that people might not respond properly to this warning. This, too, is an example of the duty of having to incorporate mistakes of others.

The mistakes of the victim are relevant when discussing the topic of contributory (or in Dutch law: comparative) negligence. The general defense of comparative negligence of article 101 of book 6 of the Dutch Civil Code (article 6:101 CC) consists of two stages. In the first stage, the loss is divided between injurer and victim in proportion to the contribution that the factors that can be accounted to both parties have made to the losses. This is generally regarded as a causal division, because neither party needs to have done something wrong at this stage. At the second stage, the causal division can be changed if equity demands this due to a diversion between the seriousness of mistakes on both sides or due to other circumstances of the case.
This so-called *equity-correction* is a major source of cases in which the victim has made a mistake, but the court does not hold him comparatively negligent. Especially if the injurer violates a *traffic* or a *safety rule*, the victim of a resulting accident is legally well protected.[17] These rules are designed to protect against certain accidents, and the violator of such a rule has to anticipate the fact that the person that is protected by the rule will not always act in a careful manner himself.

16. Supreme Court May 25, 2004, *NJ* 2005, 105.
17. Besides the fact that careless behavior of the victim does not necessarily constitutes comparative or contributory negligence, the violation in principle is already enough to establish a causal relationship between the violation by the injurer and the injuries of the victim, if these injuries are of the type that the rule seeks to protect against.

Traffic Accidents

In traffic accidents between a motorist and a non-motorized traffic participant, Dutch law holds the motorist liable.[18] The general rule from article 6:101 CC on comparative negligence is in principle applicable. In case law, the Supreme Court has ruled on the issue of comparative negligence:

- Regarding victims of younger than fourteen: According the Supreme Court, motorized traffic brings about additional risks for little children, because they are not able to adapt their care level to the dangers of this traffic. It is unfair to let the child bear (part of) his own losses on the mere ground that the losses are also caused by his incautious traffic behavior.[19] Young bicyclists have more to fear from motorized traffic than adult bicyclists, because they are impulsive and unpredictable. The law wants to provide additional protection for children. When a child is put in a dangerous position due to a fault of the car driver, the fact that the child subsequently makes a mistake cannot be accounted to the child. Children get confused sooner than adults, which might disable them to act according to the traffic rules they know.[20] Even if the car driver makes no mistake and the child does, the child should be legally protected. There can only be comparative negligence if the child acts with intent or with recklessness bordering on intent, but there are no cases in which this is assumed to be the case. The age limit is derived from article 6:164 CC, which states that acts of a person younger than fourteen cannot be accounted to this person as a tort. In legal literature, this rule is extended to cases in which a safety rule rather than a traffic rule is violated.[21]
- Regarding victims of fourteen and older: The above-described level of protection can only be given to children of younger than fourteen (even if an older victim looks and acts like a child younger than fourteen years). The protection that traffic law wants to provide to all non-motorized traffic participants results in the motorist having to bear at least 50% of the losses of the bicyclist. If the faults of the motorist have contributed more than 50%, he bears this larger fraction.[22]

  If the victim acted with intent or with recklessness bordering on intent, the motorist is not liable. Case law shows that it is not very clear when this is the case: a 29-year-old man rides his bicycle and a tram drives left behind him. They approach a side street to the left. The tram driver rings the bell to warn the bicyclist for its presence (in case the bicyclist wants to turn left) and he takes his foot off the electricity pedal and puts it on the brake (without actually braking). The bicyclist does not respond to the bell. The tram driver rings the bell a second time, but still the bicyclist does not respond. The tram driver therefore assumes that the bicyclist will go straight on. Then the bicyclist turns left without looking over his shoulder and without indicating that he wants to turn left. The tram hits him. The district court reasons that the tram driver should have continued ringing the bell constantly when the bicyclist did not respond, and divides the losses 50/50 between plaintiff and

18. Article 185 of the Road Traffic Act 1994 (Wegenverkeerswet). In this paper I do not analyze the possible defence that the accident was caused by an Act of God, because that would bring the topic of causation into the analysis. In this paper, I want to keep the focus on the duty to incorporate mistakes of the victim.
19. Supreme Court June 30, 1978, *NJ* 1978, 685 (*Ebele Dillema*).
20. Supreme Court February 20 1987, *NJ* 1987, 483 (*Marcel Woestenburg*).
21. Supreme Court June 1, 1990, *NJ* 1991, 720 (*Ingrid Kolkman*).
22. Supreme Court December 24, 1993, *NJ* 1995, 236 (*Anja Kellenaers*).

defendant. The appellate court rules that the tram driver has done nothing wrong so that he is not liable at all. According to the Supreme Court however, due to the 50%-rule, the tram driver should anticipate mistakes of non-motorized traffic participants, except for mistakes that are so unlikely that he reasonably does not have to expect them. The mistake of the bicyclist is not so unlikely, so the tram driver is liable for at least 50% of the losses.[23]

It is remarkable that in a case in which a 19-year-old bicyclist turned left without indicating at the exact moment a moped driver was overtaking her, the Supreme Court ruled that this mistake was so unlikely that the moped driver did not reasonably have to expect it.[24] This difference in ruling might be caused by the fact that in the latter case, the moped driver was the one suffering the losses. Also, the moped driver was already driving next to the bicyclist when she turned left, while in the former case the tram was still driving a bit behind the bicyclist.

In a third case, an adult bicyclist crosses a red traffic light at full speed. A bus at a bus stop blocks his view to the right. When crossing the street he is hit by another bus coming from the right. This bus drove with moderate speed (about 30 km/h) because it had to stop at a bus stop just behind the crossing. The bus only entered the crossing about one meter before it was brought to a stop. The bus driver argues that it was so unlikely that an adult bicyclist would enter the crossing at this time that the bus driver did not reasonably have to anticipate this possibility. The Supreme Court agrees with this line of reasoning. The bus driver therefore is not liable for not anticipating this mistake.[25]

So, the victim of traffic accidents is legally well protected in Dutch law. The motorized traffic participant has to anticipate mistakes of the non-motorized traffic participant, unless they are very unlikely.

Labor-related Accidents

The victim of labor-related accidents is also well protected by Dutch law. Liability of the employer is a matter of contract law, but the accident situations and the high level of protection are well comparable to the above-described rules of tort law. Article 7:658 CC requires the employer to equip and maintain the rooms, machines and tools in which or with which the employee has to work in the manner that is reasonably required to prevent the employee to get hurt in the performance of his duties. The employer also has to take the measures and provide the instructions necessary for this result. The employer is not liable if he has fulfilled this duty, or if the losses are in a large part the result of intent or conscious recklessness of the employee. In case law it is decided that the level of safety that is required from the employer should be based also on the rule of experience that daily operation of machines or daily executing the same actions at the side of the employee leads to a decrease in his level of care. If an accident happens due to such a decrease in the care level of the employee, the employer cannot use this against him.

An example of the strong protection of employees is given in the following case.[26] A carpenter has to rebuild a disassembled factory building and he has to install roof

23. Supreme Court July 14, 2000, *NJ* 2001, 417 (*Geertsema /De Niet*).
24. Supreme Court May 31, 2002, *NJ* 2004, 161 (*Bijlsma/Sterk*).
25. Supreme Court February 16, 1996, *NJ* 1996, 393 (*Plomp /Ketelaar*).
26. Supreme Court September 20, 1996, *NJ* 1997, 198 (*Pollemans/Hoondert*).

plates near the edge of the roof. He received explicit instructions to stay on the scaffolding. The carpenter however repeatedly left the scaffolding and was warned several times by his employer and by other employees to stay on the scaffolding. At a certain moment, he falls trough the roof on a spot more than two meters away from the scaffolding, where the roof plates were already installed and where he did not have to be for his work. He sues his employer for damages and succeeds, because the legal rule only employs a defense of 'conscious recklessness'. According to the Supreme Court, even though the behavior might have been reckless, it is not clear if the carpenter realized that his behavior was so reckless. In the annotation of this case, the annotator states that if someone is repeatedly warned for the dangers of his behavior but still continues this behavior, yet he is not regarded as consciously reckless, it is difficult to think of behavior that would constitute conscious recklessness. Hence, mistakes of employees seldom lead to a decline of liability of the employer.

Product Liability

Finally, in product liability law, producers have to incorporate the fact that consumers can make mistakes. If the consumer misuses the product, but this misuse was foreseeable, then the producer can still be held liable. Also, the producer should incorporate the fact that not all consumers will take the necessary care when using the product. *E.g.*, manufacturers of pharmaceuticals should anticipate the tendency of some patients to take more of the medicine than is prescribed. The manufacturer should at least warn for the possible results of over dosage.[27] In an older case regarding a defective (leaking) hot water bottle, where the losses could have been avoided if the consumer would have taken the required care measures (checking if the bottle was leaking), the Supreme Court stated: 'In order to determine the accident probability as a result of the defect with which the manufacturer has to reckon in determining his care level, he should not only pay attention to consumers that take the required care when using the product, but rather to the entire public, of which a part will not take those required measures.'[28]

3.3 Examples from Other Countries

In this section I briefly present some cases from other countries to further illustrate the issue of incorporating mistakes of the victim. It turns out that the duty to incorporate mistakes differs per country.

A Swedish inline-skater tripped over some tree branches that were left behind after the state had removed a fallen tree. The lower court held the state liable for the losses of the inline-skater, even though the skater might have avoided the accident if he had been more careful. The state should have realized that there would be inline-skaters on this stretch of road, which might be injured by the remaining branches. The higher court, however, argued that inline-skating is in itself an activity with some inherent dangers. Skaters have to be aware that branches and other obstacles might be present, so they should look out for them. They are not allowed to expect the road

27. See e.g. the Dutch *Halcion*-case: Supreme Court June 30, 1989, *NJ* 1990/652.
28. Supreme Court February 2, 1973, *NJ* 1973, 315 (*Jumbo I*) (my translation, LV).

to be so clean that they do not have to look out for obstacles. Hence, the higher court does not require the state to incorporate such uncareful behavior.[29]

In an Italian case regarding an accident between a car driver and a pedestrian where the pedestrian crossed the red light while the car driver was driving at a reasonable speed (about 35 km/h), the court decided that the victim should bear his own losses.[30] The car driver hence does not have to incorporate such mistakes. In comparison, in the Netherlands, as I explained above, the car driver would have had to bear 50% of the losses if the pedestrian was older than fourteen, and 100% if the pedestrian was younger. In the case *Del Vino c. Generali assicurazioni s.p.a.*,[31] the court reasoned that a car driver has a duty to behave diligently when driving. This duty consists of taking due care when approaching a crossroad, also considering the dangers coming from potential illicit or imprudent behavior of other traffic participants who do not obey a stop signal or give right of way. This line of reasoning clearly differs from the result in the first case.

In the American case *Valenzuela v. Bracamonte*,[32] a 13-year-old bicyclist crossed the street without properly looking, while a car was approaching. The boy was still able to reach the far traffic lane, but he was followed by his 3-year-old cousin on a tricycle. The car driver swerved to avoid the 3-year-old boy, thereby hitting the 13-year-old boy. The jury found the 13-year-old boy contributory negligent, because he knew his cousin was following him and should have foreseen that the car driver might swerve to avoid the tricycle. Here again, the injurer does not have to incorporate such mistakes. In *Lowe v. Futrell*,[33] a bicyclist who turned left without first looking behind him was hit by the car that was just overtaking him. His claim for damages was rejected on the basis of contributory negligence. In the Netherlands, he could have recovered at least 50% of his losses, as became clear in the case with the tram. In *McFarland By and Through McFarland v. King*,[34] the court held that 'a driver of a vehicle must maintain such lookout and control as will avoid collision with others exercising due care. He has a right to assume that others, children and adults, will do likewise'. This line of reasoning obviously greatly limits the duty to incorporate possible mistakes of the victim.

In a German case before the *Oberlandesgericht Nürnberg*,[35] a bicyclist who stood in a side-street did not give right of way to an approaching car, because he though he saw the car driver indicating to turn right. The car driver contests this, because he had to drive straight through. A collision occurred. The court of first instance regards the bicyclist as being contributory negligent, so that the car driver is not liable. The court argues that this could have been different if the motorist would have reacted too slowly, by *e.g.* braking too late. However, this did not become apparent in this case. The latter line of reasoning implicitly shows, however, that in such a situation, the motorist could have been (partly) liable, even though the victim himself was the cheapest cost avoider. The *Oberlandesgericht Braunschweig* argues that an accident is only regarded as 'unavoidable' (which would bar liability of the car driver) if even the highest possible

29. RH 2007:15 Hovratten.
30. Corte di Cassazione, Sezione III, October 18, 2001, n. 12751.
31. Corte di Cassazione, Sezione III, May 10, 2005, n. 9750.
32. 126 Ariz. 472, 616 P.2d 932 Ariz.App., 1980.
33. 271 N.C. 550, 157 S.E.2d 92 N.C. 1967.
34. 216 Neb. 92, 341 N.W.2d 920 Neb.,1983.
35. OLG Nürnberg, 3 U 2818/04.

care could not have prevented it. This care level includes that the car driver has to take possible – even considerable – mistakes of others into account.[36]

4. Different Types of 'Mistakes'

The duty to anticipate mistakes of others is often imposed on a so-called strong party. The motorist has to anticipate mistakes of a pedestrian or bicyclist, but not *vice versa*. The manufacturer has to anticipate mistakes of a consumer, but not *vice versa*. The employer has to anticipate mistakes of an employee, but not *vice versa*. There are also examples of situations where the parties involved have to anticipate mistakes mutually. For instance, road authorities have to incorporate the fact that not all road users will pay the required attention or take due care, but the road users have to anticipate that not all roads will be in perfect condition. Given that the vast majority of cases concerns the one-sided duty of the stronger party to anticipate mistakes of the weaker party, I will focus my attention on such cases, and will distinguish three different situations.

4.1 Excessive care costs for the weak party

There can be good reasons to hold the stronger party liable, even if the weaker party has made a mistake in a non-economical sense of the word. For instance in traffic accidents, one could argue that young traffic participants do not understand the dangers of traffic and cannot act in a careful way. Children are bound to make mistakes regularly, and adult traffic participants should pay extra attention when interacting with young traffic participants. Dutch law is very clear on this point: if a non-motorized traffic participant of younger than fourteen is involved in a traffic accident with a motorized traffic participant, the latter is (almost) always fully liable. Mistakes of the child do not limit this liability.

In economic terms, it is questionable if the child made a mistake in the first place. The care costs of the child are high, sometimes even prohibitively high. This implies that the optimal care level of the child will be relatively low, or even that we are dealing with a so-called *unilateral accident* in the sense that the child cannot lower the expected accident losses by adapting his behavior to the dangers of traffic. One could therefore argue that a little child that crosses the street without looking does not make a mistake in the economical sense. The carelessness is normal behavior rather than a mistake. The fact that the child cannot really alter its behavior is a strong argument to require the motorist to incorporate this behavior into his own care decisions.

Also the line of reasoning followed in labor related accidents, that it is human nature to become less careful if one acts in a daily routine, provides a rationale for requiring the employer to anticipate such behavior. Of course it will be difficult to draw the line between such 'normal careless behavior', where the optimal care level of the victim is relatively low, on the one hand, and a mistake in the sense of taking less than optimal care on the other. The general idea behind the line of reasoning however makes sense: if the costs of avoiding the careless behavior that comes with routine are

36. OLG Braunschweig, 7U52/02.

relatively high, it is desirable to let the employer anticipate this type of behavior. He might be in the position to avoid people from developing routines (*e.g*. by regularly rotating the employees over the different duties) or to prevent them from getting hurt in the first place (*e.g.* by installing safety devices that make it impossible to operate a machine in a hazardous way).

The same is true for consumer protection. If it is too expensive for the ordinary consumer to read and understand safety instructions of a product and act accordingly, it might be better that the producer makes the product safer so that foreseeable use contrary to the instructions does not put the consumer in unreasonable danger.

In conclusion, if the weaker party faces high care costs, his optimal level of care will be relatively low. The stronger party should anticipate the 'mistakes' that go along with this low optimal level of care. This implies that the optimal level of care for the stronger party will be relatively high, to offset the relative low due care level of the weaker party. From an economic point of view, one might even argue that the weaker party did not make a mistake in the first place, but that he acted according to his (low) optimal care level.

Even if the weaker party might have avoided the accident at less cost than the expected accident losses, so that one could say that he is negligent, it might be the case that the stronger party could have avoided it at even lower costs. In such an alternative care case, where either party could have prevented the accident but the stronger party is the cheapest cost avoider, the stronger party should get an incentive to indeed prevent the accident. Holding him liable for the losses, even though the weaker party also could have prevented the losses, provides this incentive.[37]

4.2 Lapses

Shavell mentions the possibility that a party might be unable to completely control his momentary level of care.[38] Actual care might sometimes be a bit above, and sometimes a bit below the average level of care taken by this particular person. According to Shavell, this usually induces people to take more than due care on average, so that a momentary decrease in their care level does not lead to negligence. If this indeed is true, the 'mistake' of one party is still behavior that is careful enough, so that there is no problem of inadequate care incentives.

Shavell also asks the question whether courts might sometimes lower the level of due care in implicit recognition of parties' problems in controlling their momentary level of care, *e.g.* by allowing for some irregularity in driving behavior, knowing that individuals cannot maintain full concentration at all times. This is the topic of section 4.1 above, where courts indeed allow for mistakes of the weaker party. Of course, the stronger party faces similar problems. One might ask why the courts do not recognize this side of the problem as well, *e.g.* by requiring pedestrians to wait with crossing the

37. W.M. Landes and R.A. Posner, 'A Positive Economic Analysis of Products Liability', (14) *Journal of Legal Studies* 1985, p. 561, 562.
38. Shavell 1987, p. 81.

street until they have actually had eye-contact with a car driver, to prevent accidents due to a lapse of attention of the car driver.

4.3 Sub-optimal average care level

The third type of mistake I want to distinguish is the situation where a party chooses a lower than optimal level of care. The difference with the type of mistake in section 4.1 is, that there the actor chose the optimal care level, which happens to be low as result of high care costs. The difference with the type of mistake in section 4.2 is that there the average care level is high enough, but momentary lapses lead to sub-optimal care at certain points in time. In the present section, the average care level chosen by the actor is lower than optimal, given his care costs.

The fact that the actor has chosen a too low level of care increases the accident probability. *E.g.* the bicyclist rides his bike at night without using a light, the pedestrian systematically crosses red signs, a motorist systematically drives too fast, *et cetera*. The term 'mistake' then implies that the actor making the mistake could have acted differently, and that this different behavior would have lowered total accident costs. In essence, the party making the mistake is behaving negligently.

The legal duty of the stronger party to incorporate possible mistakes of the weaker party in his own care decisions is present in situations where both parties act sequentially (so one after the other), but also in situations where they act at the same time. An example of the first situation is a traffic mistake made by the weaker party, where the law requires the stronger party to respond properly. If *e.g.* a pedestrian crosses the street without first looking properly, an approaching car driver is required to brake or swerve to avoid a collision. An example of the second situation is the same traffic situation, but now the car is already so close to the pedestrian that braking or swerving is not possible anymore. The car driver might still be held liable, because he is supposed to anticipate such possible mistakes by slowing down in case the pedestrian would suddenly cross the street.

The legal rule that the stronger party has to anticipate such sub-optimal behavior may distort the care incentives provided by the liability rules, because it interferes with the defense of contributory or comparative negligence. In the next section, I will analyze this type of mistakes more detailed from an economic point of view.

5. Economic Analysis of the Duty to Anticipate Suboptimal Care of the Weaker Party

5.1 Introduction

In this section, I will apply the game theoretical approach as explained in Section 2 to analyze the influence of the legal duty to anticipate mistakes of others, in situations where the mistake consists of taking lower than optimal care on average. I will distinguish between three situations: (1) parties act simultaneously; (2) the weaker party moves first; (3) the stronger party moves first.

The duty to anticipate mistakes of others assumes that care inputs of injurer and victim are substitutes, because it only makes sense to require the stronger party to react to a mistake, if this reaction can lower the accident probability. This implies that the optimal level of x is higher at lower levels of y and *vice versa*, and the optimal level of y is higher at lower levels of x and *vice versa*. As usual, total accident costs are minimized if both players choose their optimal care levels, x^* and y^*.

5.2 Simultaneous situation

In many interaction situations, care decisions of the players involved are taken simultaneous. *E.g.* in traffic, there are many instances in which there is not enough time to wait and see what action someone else will take. Traffic participants will have to anticipate the possible behavior of the other traffic participants. The legal duty to incorporate possible mistakes of others influences the care incentives that players receive.

5.2.1 Negligence

If the injurer has to incorporate possible mistakes of the victim into his own care decisions, this means that taking the optimal care level x^* is not enough for him to avoid liability in cases where the victim has made a mistake. Denote the (too low) care level of the victim which the injurer has to incorporate by y^-. In order to avoid liability in such a setting, the injurer has to take a higher than optimal care level, denoted by x^+. This legal rule provides the victim with a dominant strategy to take y^-:

- If $x < x^+$, the injurer would be liable for not incorporating the mistakes of the victim. The private expected costs of the victim are then minimized by taking y^-. The victim would not choose any $y < y^-$ (denoted by y^{--}) because the injurer would not have to incorporate such mistakes, so that the latter would escape liability by taking x^+. Given that the victim would have to bear the losses in these cases, his expected costs would be $y^{--} + p_{(x^+,y^{--})}L$ instead of y^-. Due to the substitutability of care inputs, $y^{--} + p_{(x^+,y^{--})}L > y^- + p_{(x^+,y^-)}L > y^-$.
- If $x \geq x^+$, the injurer is not liable and the expected private costs of the victim are $y + p_{(x^+,y)}L$. The injurer would then choose $x = x^+$ because that minimizes his costs. Due to the substitutability of care inputs, the costs of the victim are minimized at y^-. Again, the victim would not choose any $y < y^-$.

Given this dominant strategy of the victim to take y^-, the injurer will choose x^+ and escape liability. Choosing any $x < x^+$ would make the injurer liable and due to the substitutability of care inputs, $x + p_{(x,y^-)}L > x^+ + p_{(x^+,y^-)}L > x^+$ (for any $x \neq x^+$).

The equilibrium of this game will be that the injurer takes x^+ and the victim y^-, which is clearly not welfare maximizing, because the total accident costs are minimized at x^* and y^*. In the equilibrium, the expected private costs of the victim are $y^- + p_{(x^+,y^-)}L$, while in the social optimum these costs are $y^* + p_{(x^*,y^*)}L$. Because

these costs in equilibrium are lower than in the optimum,[39] the victim externalizes the increase in total accident costs on the injurer.

5.2.2 Strict Liability with a defense of contributory negligence

Under this rule, if the injurer has to incorporate mistakes of the victim, in essence the norm of contributory negligence is reduced from y^* to y^-. This provides the victim with a dominant strategy to take y^-. The rationale is the same as in Section 2.2. Given that the injurer now will always be liable, he will take x^+, because that minimizes $x + p_{(x,y^-)}L$. Hence, in equilibrium the victim will take y^- and the injurer x^+.

5.2.3 Conclusion

In situations where the injurer and the victim simultaneously choose their care levels, the legal duty to anticipate mistakes of the victim forces the injurer to take higher than optimal care, either to avoid being negligent, or to minimize the costs he has to bear under strict liability. The private costs of the victim decrease when compared to the optimum, but the total accident costs increase. Hence, the victim is able to externalize the impact of his mistakes on the injurer.

5.3 Sequential situation where the victim is the first mover

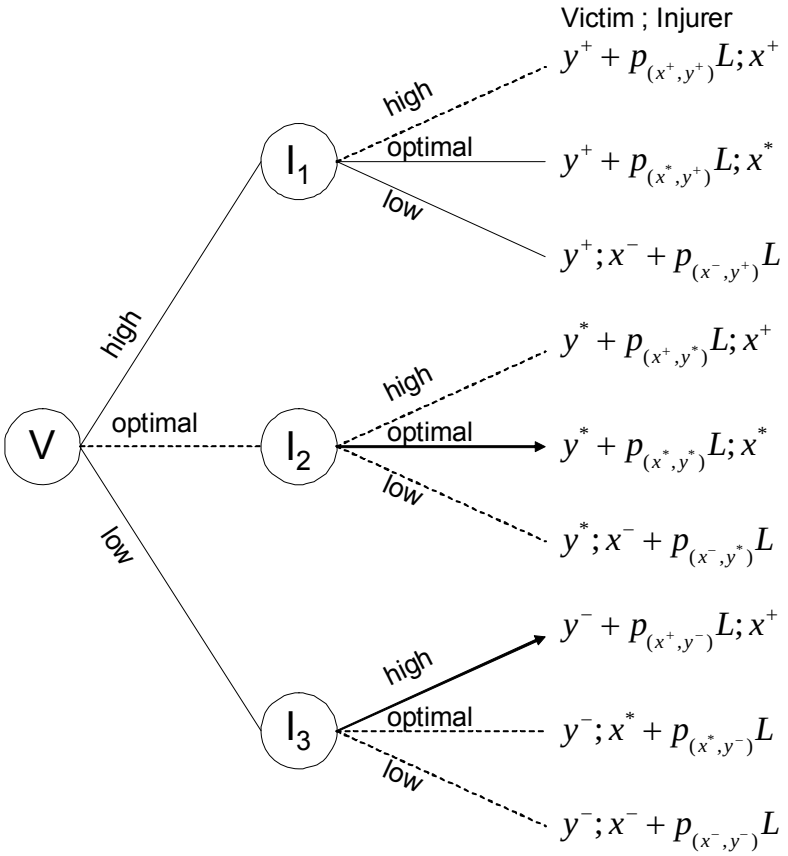
In some accident settings, the injurer has the possibility to respond to a mistake of the victim. The victim is the first mover, deciding which care level to choose. This move is observable for the injurer, who can subsequently decide how to respond to the choice of the victim. For example, if a pedestrian crosses the street without looking and an approaching motorist still has the opportunity to brake or swerve, this situation can be described as a sequential game in which the victim chooses low care and the injurer responds with taking high care.

5.3.1 Negligence

The game tree below depicts the sequential situation where the victim chooses his care level first. The injurer is negligent if he does not respond properly to mistakes of the victim.

39. We know that $y^* + p_{(x^*,y^*)}L > y^* + p_{(x^+,y^*)}L$. Due to the substitutability of care inputs, $x^+ + y^* + p_{(x^+,y^*)}L > x^+ + y^- + p_{(x^+,y^-)}L$, so that $y^* + p_{(x^+,y^*)}L > y^- + p_{(x^+,y^-)}L$. Combining, we then know that $y^* + p_{(x^*,y^*)}L > y^* + p_{(x^+,y^*)}L > y^- + p_{(x^+,y^-)}L$.

Figure 2: Negligence Rule in Sequential Game where Victim is First Mover



The victim has to decide between taking low, optimal or high care. The injurer observes the move of the victim and chooses accordingly. If the victim chooses optimal care, it is optimal for the injurer to choose optimal care as well, because he already escapes liability with this care level (so that high care is not worthwhile) and because being negligent makes him liable (which is more costly than taking due care). In the tree the arrow pointing to optimal care and the dashed lines leading to high and low care indicate this.

If the victim chooses low care, due to substitutability of care inputs total accident costs are lowest when the injurer takes high care. So even if the injurer would still be liable, he would prefer to take high care. Given that he escapes liability under the negligence rule when taking high care, his preference for taking high care is even stronger.

If the victim chooses high care, an indeterminacy occurs, which makes it impossible to tell whether the injurer will take low or optimal care. From footnote 39 we know that $y^* + p_{(x^*,y^*)}L > y^- + p_{(x^+,y^-)}L$, so that the victim prefers to take low care over taking optimal care. But will he choose high or low care? If he chooses high care, it is not certain what the injurer will do. If $x^* < x^- + p_{(x^-,y^+)}L$, the injurer will choose x^* and the victim will have to bear $y^+ + p_{(x^*,y^+)}L$. These costs are higher than the victims' costs when taking low care, so in this situation the victim will choose low care. If, on the other hand, $x^* > x^- + p_{(x^-,y^+)}L$, the injurer will choose low care given high care of the victim. The costs of the victim then are y^+. It depends on the exact circumstances whether these high care costs of the victim are higher or lower than his costs when taking low care.

To summarize: the victim takes high care if $x^* > x^- + p_{(x^-,y^+)}L$ and $y^+ < y^- + p_{(x^+,y^-)}L$ and the injurer will then respond by taking low care. In all other circumstances the victim will take low care and the injurer responds by taking high care.

The scenario where the victim takes high care and the injurer low does not seem to be very realistic, because it requires a specific set of circumstances: the costs of optimal care of the injurer have to be higher than his costs of low care plus liability. This will only be the case if the reduction in care costs that the injurer can realize by taking low care exceeds the expected liability at this low care level. I therefore believe that the most plausible outcome of the sequential game is the same as in the simultaneous game: the victim takes low care and the injurer responds by taking high care. In any case, for the topic of this paper this is the only relevant situation, because taking high care by the victim does not constitute a mistake that the injurer should incorporate into his own decisions.

5.3.2 Strict liability with a defense of contributory negligence

Here the situation is very clear: the injurer is always liable, hence the victim always only bears his own care costs. He minimizes these by choosing low care. The injurer responds by taking high care. The defense of contributory negligence does not provide the victim with the correct incentives, exactly because the duty to incorporate mistakes of the victim frustrates the potential incentive effects of this defense. The mistakes of the victim, in other words, do not constitute contributory negligence, so that the injurer is still liable, irrespective of those mistakes. The defense only prevents the victim from taking an even lower care level than y^-. The rationale is explained in Section 5.2.1.

5.4 Sequential situation where the injurer is the first mover

There are also interactions possible where the injurer first decides on his care level, and the victim responds to this. *E.g*. a manufacturer has to decide how safe to make his product, and after the production process, the consumer has to decide how much care to take by using the product.[40]

Under strict liability, the result is the same as above. After all, irrespective of the care level of the injurer, the victim will always choose low care. Knowing this, the injurer chooses high care. Under negligence, an identical outcome will be reached. The injurer is liable if he did not properly anticipate mistakes of the victim. The victim can suffice with a low care level, irrespective of the care level of the injurer. If the injurer chooses a low level as well, he is always liable. If he chooses the optimal care level, he is also liable, because the victim chooses low care and in that situation, optimal care of the injurer is insufficient. Only if the injurer chooses high care, he will escape liability. And

40. The relevance of this situation for the topic of mistakes of the victim is clearly shown in M. Adams, 'Produkthaftung - Wohltat oder Plage - Eine ökonomische Analyse', *Betriebs-Berater - Zeitschrift für Recht und Wirtschaft*, Beilage 20/1987 zu Heft 31/1987.

even if he would not escape liability, given low care of the victim, high care of the injurer minimizes the total accident costs.

5.5 Conclusion

The conclusion is relatively straightforward: if the injurer is legally obligated to incorporate mistakes of the victim, and if these mistakes consist of taking a lower than optimal level of care, the victim will choose this lower level of care. The injurer is then forced to take high care, in order to (partially) offset the increased accident probability. The increase in total accident costs is borne by the injurer. Only under very specific and unrealistic conditions in sequential settings where the victim is the first mover, the equilibrium might be found where the victim takes high care and the injurer low. For the topic of 'incorporating mistakes of the victim', this type of setting is not relevant.

6. Last Clear Chance

After reading the conclusion of section 5, the solution seems very simple: remove the legal duty to incorporate mistakes of others, and the optimal outcome will be reached. However, this solution might be a bit too simplistic in the sequential game where the victim moves first.

The problem is as follows: if in a certain situation the victim has made a mistake, if the injurer has the opportunity to respond to this mistake by increasing his care level, and if the increase in care costs of the injurer is less than the decrease in expected accident losses caused by it, it is desirable that the injurer takes the additional care measures. So, even though the victim originally might have been the cheapest cost avoider, after the initial mistake of the victim the injurer might have become the cheapest cost avoider. An example: it is cheaper for a car driver to look in his mirror before opening the door when he wants to exit, than for other traffic to keep a large distance to parked vehicles or to drive so slowly that a collision with a suddenly opened door can still be avoided. The first car driver hence is the cheapest cost avoider. However, if this car driver makes a mistake and does not check his mirror before opening the door, an approaching traffic participant suddenly might become the cheapest cost avoider – given the mistake of the car driver – and it is desirable that he swerves or brakes, if he has the opportunity to do so against low enough costs.

In tort law, the legal figure dealing with this type of situation is known as the 'last clear chance'. The costs of the injurer to avoid the accident, given the fact that the victim has already made a mistake, are lower than the costs of the victim to avoid the accident after his mistake. Landes and Posner note that this doctrine might dilute the care incentives of the victim, because it imposes a duty on the injurer to respond to mistakes of the victim. However, they see the doctrine as a possible correction of the problem that tort law uses average values to measure care: the average victim might be the cheapest cost avoider, but in a specific accident situation, the victim under analysis might have higher care costs than average. This could lead to the situation that the injurer in a specific accident is the cheapest cost avoider, even if on average

the victim is.[41] The doctrine then gives the injurer an incentive to respond to the mistake of the victim. However, the general problem that the doctrine might dilute care incentives of the average victim still exists.

Wittman illustrates the doctrine of the last clear chance with the case *McKee v. Malenfant.*[42] One person negligently left his truck standing on the highway and another person collided with it. The first person clearly was the cheapest cost avoider, but given that his truck was on the road, the second person should have tried to avoid the accident. The court held the driver of the moving truck liable because he had the last clear chance to avoid the accident. It is interesting to note that a similar case in Lithuania was decided diametrally different. The driver of a combine harvester left his vehicle in the middle of the road without marking the presence of his vehicle (e.g. with lights). A driver of a car smashed into this vehicle. The court held the driver of the parked vehicle solely liable for negligently having left the vehicle parked without any sign.[43]

Wittman has constructed an ingenious solution to the problem: *marginal cost liability*. The victim has to bear the increase in care costs of the injurer, as well as the losses that still occur after the injurer has taken high care. However, if the injurer does not shift to high care, he is liable for the losses of the victim.[44] This rule makes it more attractive for the victim to choose optimal care than to choose low care, because the externality he causes by choosing low care is internalized by him. If the victim makes a mistake after all, the injurer will respond with high care in order to avoid liability.

Wittman argues that comparative negligence cannot solve the incentive problem: either both parties bear a fraction that is insufficient for them both to take optimal care, or only one party receives enough incentives to take optimal care while the other does not. He therefore disagrees with legal writers who see the last clear chance doctrine as a transitional regime that was useful under a system of contributory negligence but not under comparative negligence.[45]

Tort law alone cannot reach the solution Wittman proposes, but the author argues that if the role of criminal law is included, the results are broadly consistent with his theoretical analysis: the negligent behavior of the victim is, if possible, subject to a criminal sanction which is based on the increase in care costs it imposes on others. *E.g.* if the victim violates traffic regulations and thereby forces others to react to his behavior, the fine for violating *e.g.* a speed limit should be based on the increase in care costs of the other traffic participants who have to react to this behavior. The crucial difference between criminal law and tort law in this respect is that tort law can only be used if losses have been caused, while criminal law can also be applied if there are no losses. It is the *input* that is being fined (*e.g.* drunk driving), not the *output* (*e.g.* losses arising from an accident).

41. W.M. Landes & R.A. Posner, *The Economic Structure of Tort Law*, Cambridge, Massachusetts: Harvard University Press 1987, p. 92 e.v.
42. [1954] 4 D.L.R. 785.
43. Šalčinikų district Court, civil case no. 2-100/99.
44. D. Wittman, 'Optimal Pricing of Sequential Inputs: Last Clear Chance, Mitigation of Damages, and Related Doctrines in the Law', (10) *Journal of Legal Studies* 1981, p. 74 and further.
45. Wittman 1981, p. 79. See e.g. *Prosser and Keeton on Torts* 1984, p. 468: 'The doctrine thus appears to be a dying one, particularly in many of the jurisdictions which have adopted a system of comparative fault'.

In simultaneous situations (including sequential situations where the injurer does not have enough time to respond to the mistake of the victim), in sequential situations where the injurer moves first and in sequential situations where the victim moves first but his mistake does not constitute behavior for which a criminal sanction is possible, the solution of Wittman does not work. Using a defense of comparative negligence in my view could then be the *second-best* outcome, provided that a mistake of the victim that consist of choosing less than optimal care constitutes comparative negligence. The normal conclusions then hold: both parties receive incentives to take optimal care. In case a victim makes a mistake anyway, this behavior will lead to a decrease of his compensation.

In sequential games where the victim moves first but the fine-solution of Wittman is not possible, comparative negligence might provide parties with correct incentives in a range of cases. The victim knows that if he makes a mistake and the injurer responds properly, he will receive no compensation at all (because he is the only one at fault). If he makes a mistake and the injurer does not respond properly, he will only receive partial compensation. The fraction is determined by comparing the mistake of both parties. The more difficult it is for the injurer to respond to the mistake of the victim, the less weight will be attached to his failure to respond and the more losses the victim has to bear himself. This gives the victim an incentive to prevent mistakes that the injurer cannot anticipate and cannot respond to. The injurer hence is not required to correct mistakes if the costs of correction are too high. But if the victim makes a mistake anyway and the injurer is able to respond properly against relatively low cost, we want him to do so. The comparative negligence rule gives him an incentive to do so, because not responding although it was relatively easy causes the injurer to have to bear a relatively large fraction of the losses.

Hence, in cases where the solution of Wittman is not possible, using a defense of comparative negligence might be a good alternative. In a full assessment of the possibility of comparative negligence as a second-best solution, the strengths and weaknesses of this defense should be evaluated.[46]

7. Conclusions

The legal duty to incorporate mistakes of the victim may distort the care incentives provided by tort law, depending on the type of mistake. If the mistake merely consists of applying a low care level due to the high care costs of the victim, in essence this low care level was the optimal level for the victim. *E.g.* little children face such high care costs when participating in traffic. It is desirable that other traffic participants anticipate possible mistakes of such victims. Also if mistakes are made because it is impossible

46. The fact that it might be difficult to make a correct weighing of the mistakes of both parties is an example of a possible weakness. Errors in determining the fraction of the losses that both parties have to bear, influences the behavioral incentives that parties receive from the tort system. For a recent discussion regarding the economic analysis of contributory and comparative negligence, see M.G. Faure, 'Economic Analysis of Contributory Negligence', in: U. Magnus and M. Martín-Casals (Eds.), *Unification of Tort Law: Contributory Negligence*, The Hague: Kluwer Law International 2004, p. 233-256.

to always maintain a high enough care level, it is desirable that others incorporate such mistakes.

However, in situations where the mistake consists of applying a lower than optimal care level, the duty to incorporate such mistakes essentially lowers the care level required from the victim, thereby forcing the injurer to take more care than optimal. This is an undesirable result, which occurs both in simultaneous and in sequential settings.

Wittman's idea of marginal cost liability theoretically can solve the problem in sequential games where the victim is the first mover. In cases where this theory cannot be applied, using a defense of comparative negligence might serve as a second best solution.